

## CLAIMS

### What is claimed is:

1. A medical device delivery system for therapeutically treating a patient, comprising:
  - an inner shaft, having proximal and distal ends;
  - a tubular outer sheath, at least a portion of which surrounds a portion of the inner shaft member;
  - a medical device within the outer sheath in an initial configuration;
  - a handle operatively coupled with the inner shaft and the outer sheath;
  - the handle having a first and second actuator for adjusting the relative positions of the inner shaft and the outer sheath, each of the first and second actuators providing a different amount of mechanical advantage between an input to one of the first and second actuators by a physician and a resulting relative position of the inner shaft and the outer sheath respectively.
2. The medical device delivery system of claim 1, wherein one of the first and second actuators provides a mechanical advantage of 1:1.
3. The medical device delivery system of claim 1, wherein the first actuator is adapted to rotate around a threaded base.
4. The medical device delivery system of claim 1, wherein the second actuator is adapted to slide along a longitudinal slot defined by the handle.

5. The medical device delivery system of claim 1, wherein one of the first and second actuators is formed as a lever.

5 6. The medical device delivery system of claim 1, wherein the first actuator provides a mechanical advantage greater than 1:1, to facilitate an operator to overcome initial resistance to changing the initial relative position of the inner shaft and the outer sheath.

10 7. The medical device delivery system of claim 1, wherein the handle and the first and second actuators can be operated by one hand.

15 8. A handle for manipulating a medical device delivery system for therapeutically treating a patient, comprising:  
a housing;  
inner and outer shaft members;  
the inner shaft member being affixed to the housing;  
the outer shaft member being movably coupled to the inner shaft member, such that the outer shaft member can be moved longitudinally with respect to the inner shaft member;

20 first and second means for selectively moving the outer shaft member with respect to the inner shaft member;

the first means being adapted for precise and sensitive adjustment of the position of the outer shaft member, and the second means being adapted for rapid and relatively large-scale movement of the outer shaft member.

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